PROCEEDINGS

OF THE

MADRAS GOVERNMENT

IN THE

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH,

FOR

THE MONTH OF APRIL 1886.

Printed by Authority.

MADRAS:
PRINTED BY E. KEYS, AT THE GOVERNMENT PRESS.

1886.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

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PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT,

FOR THE MONTH OF APRIL 1886.

Irrigation.
Account.

Read—the following letter from A. B. SAMPSON, Esq., Under Secretary to the Government of India, Public Works Department (Civil Works—Irrigation), to the Secretary to the Government of Madras, Public Works Department, dated Fort William, 25th March 1886, No. 72 I. :—

In reply to your endorsement, No. 189 I., dated 22nd February 1886, I am directed to communicate the sanction of the Government of India to the proposed redistribution of the total amount of direct charges sanctioned for the Sangam anicut project as under :—

	RS.
Preliminary expenses	51,130
Land compensation	2,61,424
Other works	20,95,673
Total, Works ...	24,08,227
Establishment	4,84,175
Tools and plant	1,33,654
Total, Direct charges ...	30,26,056
Deduct receipts on Capital Account	1,29,619
Net Total, Direct charges ...	28,96,437

Order—dated 1st April 1886, No. 294 I., Public Works.

Communicated to the officers concerned.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, II Circle.
„ Chief Engineer for Irrigation.
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 1st.

Recd. *Encl.*

G.O., 1st April 1886, No. 294 I.

APRIL.

Sangam Anicut Project

Sanction of the Government of India to the proposed redistribution of the total amount of direct charges sanctioned for the —, communicated to the officers concerned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following letter from J. G. HORSFALL, Esq., Collector of Ganjam, to the Secretary to Government, Public Works Department, dated Chatrapur, 22nd March 1886, No. 867 :—

I have the honor to state that a piece of Jerayiti land, measuring acres 60, is required for extending the bed of the Sitakundo Angulo tank, in Mangalapur Vishnuchekram mutah, of the Goomsur taluk.

2. The owner of the land in question does not agree to give it up by receiving money compensation, and there is no cultivable waste to be given in exchange. I therefore request that the Government will be pleased to issue orders for its acquisition under the Land Acquisition Act, and publish the enclosed statement and declaration in the *Fort St. George Gazette.*

ORDER—dated 3rd April 1886, No. 299 I., Public Works.

Ordered that the declaration and statement be published in the *Fort St. George Gazette.*

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, II Circle.
,, Chief Engineer for Irrigation.
,, Revenue Department.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 3rd.

Recd. *Encl.*

G.O., 3rd April 1886, No. 299 I.

APRIL.

Acquisition of Land

Ordered that the declaration for the — for extending the bed of the Sitakundo Angulo tank, in Goomsur taluk, be published in the *Fort St. George Gazette.*

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following letter from A. A. G. MALET, Esq., Executive Engineer, Sangam Project division, to the Superintending Engineer, II Circle, dated 15th March 1886, No. 522 :—

In forwarding an estimate for Rs. 1,079 for procuring crowbars under Revenue Account, I have the honor to point out that, as a considerable part of the project work has been and more will shortly be completed, I consider that any more tools required should be charged to Revenue and not to Capital.

2. The old stock (a large one) of tools in hand may fairly be considered equivalent to the future requirements under Capital.

Endorsement on the above.

No. 1138 S.G.

Copy forwarded to the Chief Engineer for Irrigation with the request that, under the circumstances represented by the Executive Engineer in the above letter, the enclosed estimate may be sanctioned under Revenue Account.

Nellore,
26th March 1886.

(Signed) J. L. L. MORANT, Lieut.-Col., R.E.,
Superintending Engineer, II Circle.

Order—dated 3rd April 1886, No. 301 I., Public Works.

The following estimate, amounting to Rs. 1,079, for purchasing crowbars required for the Sangam Project division, is sanctioned :—

Irrigation.
41. Major Works.
(Working Expenses.)
Sangam Project.
III. Tools and Plant.
12. Miscellaneous.

Purchasing crowbars, Estimate ... ... Rs. 1,079

2. This sanction has been registered as No. 1 I. of 1886-87.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, II Circle, with one enclosure.
" Chief Engineer for Irrigation.
" Examiner, Public Works Accounts, with duplicate abstract estimate.

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 3rd.

Recd. *Encl.*

G.O., 3rd April 1886, No. 301 I.

APRIL.

Crowbars for Sangam Project Division

Estimate for purchase of —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following letter from Major S. C. CLARKE, R.E., Acting Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 23rd March 1886, No. 2714 G.D. :—

I have the honor to submit, herewith, a revised estimate, with comparative statement, amounting to Rs. 671, for constructing a head sluice to Ramasetuva channel, a distributary of the Narsápur canal, Godávari Western division, and to request that it may be passed under the circumstances detailed in the comparative statement.

ORDER—dated 5th April 1886, No. 303 I., Public Works.

The revised estimate, amounting to Rs. 671, for constructing a head sluice to Ramasetuva channel, a distributary of the Narsápur canal, in the Godávari Western division, is sanctioned in supersession of the original estimate of Rs. 550 sanctioned in G.O., No. 1136 I., dated 17th December 1884, the excess of Rs. 121 being met from the balance of the amount available for unforeseen works, which will then be reduced to Rs. 7,699.

2. This sanction has been registered as No. 2 I. of 1886-87, and classified as shown below :—

Capital Expenditure on Public Works (not charged against Revenue).
48. Irrigation.
Godávari Delta System.
I. Works.
Western Section.
Narsápur Canal.
(3) Distributaries.
C. Works.
Constructing Ramasetuva channel head sluice, estimate ... ... Rs. 671.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, I Circle, with two enclosures.
" Chief Engineer for Irrigation.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of (1886) Madras.

PUBLIC WORKS.

Dated April, 5th.

Recd. *Encl.*

G.O., 5th April 1886, No. 303 I.

APRIL.

Ramasetuva Channel

Revised estimate for constructing a head sluice to —, a distributary of the Narsápur canal, Godávari Western division, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From the Superintending Engineer, II Circle, dated 1st March 1886, No. 555 B.C.

No. 58 I.

Note by the Chief Engineer for Irrigation.

In the statement of floating plant belonging to the Buckingham canal printed with G.O., No. 1103 I., dated 21st December 1885, the present book-value of boats and punts not having been correctly shown in accordance with the instructions contained in G.O., No. 35 I., dated 12th January 1881, the Superintending Engineer, II Circle, was requested to revise the statement. In the statement forwarded by the Superintending Engineer, with his letter, No. 555 B.C., dated 1st March 1886, and appended to this note, the book-value has been calculated by making a deduction for depreciation of 10 per cent. on the original value of all floating plant other than staff boats. The Superintending Engineer should see that future statements are similarly prepared.

Chepâk,
3rd April 1886.

(Signed) J. O. HASTED, Colonel, R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

II CIRCLE.

Statement of floating plant in the Buckingham Canal division, showing the nature of employment and the cost of upkeep during 1886-87.

Register No.	Detail of plant.		Measure of plant.					Value of plant.		Estimated cost of upkeep for 1886-87.	Employment during 1886-87.			Amount of special repairs.	Remarks.
			Hull over all.			When loaded.									
	Description.	Date of construction.	Length.	Breadth.	Depth.	Draft.	Tons carried.	Original	Present book-value.		District.	Locality.	Works.		Present condition and how to be disposed of if irreparable.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
								RS.	RS.	RS.					
G.B. No. 46.	First class staff boat ..	1884-85 ..	52 0	9 0	6 0	2 0	..	1,408	1,408	100	Chingleput.	Pulicat ..	Inspection Officers' boats.	..	In good order, require some improvement.
G.B. No. 61, new boat.	Second class do. ..	1885-86 ..	33 0	6 6	2 4½	1 4½	..	990	990	50	Nellore ..	Ramapatam.		..	These are the two boats sanctioned in G.O., No. 1145 I., of 19th December 1884, and recently received from Godávari Workshops.
New boat not yet numbered.	Do. do. ..	Do. ..	33 0	6 6	2 4½	1 4½	..	990	990	50	Chingleput.	Pulicat ..		..	
1	Budgerow Class II ..	1881 ..	40 0	8 0	2 6	1 6	8	641	641	100	Madras ..	Madras ..		..	Requires repairs.
2	Do. do. II ..	Do. ..	36 0	7 6	2 4	1 4	6	661	661	100	..	..		..	Kept for Overseer's use.
16	Do. do. III ..	Do. ..	37 5	7 6	2 9	1 9	..	595	595	..	Chingleput.	Pulicat ..		..	In good order.
17	Do. do. II ..	Do. ..	41 8	8 6	2 6	1 6	..	808	808	..	Nellore ..	Iskapalle ..		..	Do.
18	Do. do. II ..	Do. ..	44 0	8 0	2 9	1 9	9	808	808	150	..	..		..	Undergoing repairs.
		..	..	..	..	..	..	6,901	6,901	550					
53	Special boat converted into punt.	1885 ..	52 0	13 0	3 0	2 0	15	1,410	1,269	..	Chingleput.	Adyar ..	Conveying materials for different works.	..	In good order.
..	Special boat	1879 ..	38 0	6 9	2 6	1 6	6	Not known		..	Do. ..	Sadras ..	..	..	....
..	Punt with wooden ribs ..	1885 ..	60 0	13 0	3 6	..	..	1,870	1,683	100	Nellore ..	Iskapalle ..	Do. ..	..	Requires some repairs.
..	42 Ferry boats ..	1884-85 ..	22 0	4 6	2 2	..	..	3,784	3,406	200	Nellore, Madras, Chingleput and Kistna districts.	From Mercanum in South Arcot to tail of Commamur canal in Kistna.	Used as ferries for crossing the canals.	..	Do. do.
542	Cargo boat	1885-86 ..	47 7	9 8	3 3	2 3	14	230	207	50	Nellore ..	Iskapalle ..	Conveying materials for different works.	..	Recently purchased. Require repairs.
550	Do.	Do. ..	48 0	9 3	3 10	2 10	16	520	468	50					
	Total ..	..	..	..	..	..	..	7,814	7,033	400					
	Grand Total ..	..	..	..	..	..	..	14,715	13,934	950					

Note.—There is no special establishment maintained for the upkeep of boats. The officers employ their own crew on staff boats. The figures in column 11 are probable sums that may be required for upkeep of vessels in 1886-87.

Vegur,
1st March 1886.

(Signed) J. L. L. MORANT, Lieut.-Col., R.E.,
Superintending Engineer, II Circle.

ORDER—dated 6th April 1886, No. 306 I., Public Works.

Recorded.

(True Extract).

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, II Circle.
,, Chief Engineer for Irrigation.
,, Examiner, Public Works Accounts

IRRIGATION.
ACCOUNT.

Govt. of (1886) Madras.

PUBLIC WORKS.

Dated April, 6th.

Recd. *Encl.*

G.O., 6th April 1886, No. 306 I.

APRIL.

Floating plant, Buckingham Canal

A revised list of — for 1886-87 submitted by the Superintending Engineer, II Circle, with note by the Chief Engineer for Irrigation, recorded.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

No. 571 T.N.

NOTE on plan and estimate for alterations of the Opar Odai Weir, Tinnevelly district.

In G.O., No. 563 I., dated 29th June 1885, and No. 744 I., dated 1st September, sanction was given for providing the Opar Odai weir with four vents, each 10 × 6, with falling shutters. The estimate amounted to Rs. 2,655, or Rs. 664 per vent. This work has been carried out, and the shutters are considered a success. Mr. Hayes' report accompanying the estimate (paragraphs 5 to 9 and the P.S. at the end of the report) shows that these shutters can be easily opened by one man in a few seconds, and that there is little or no difficulty in closing them ; each shutter can be closed in less than twenty minutes by eight men, and, no doubt, with experience and practice, it will be found that they can be closed in a shorter time.

2. The estimate now forwarded allows for similar shutters for the whole length of dam, and it is proposed to have three bays with shutters 10 × 6 and forty-one shutters 10 × 8. As the trial shutters 10 × 6 are found to be easily worked, and as in Bengal shutters, 10 × 10 have been for years worked successfully, no difficulty in working shutters 10 × 8 is anticipated. It is thought advisable to have the two southern vents 6 feet deep so as to reduce somewhat the scour at the wing, and owing to the south pier of the trial shutters having been built with a portion of the floor 6 feet below the full tank level, the fifth vent from the north must be 6 feet depth only.

3. If this work is carried out, the Korampallem tank will be provided with a surplus at the Opar Odai dam, consisting of seven falling shutters each 10 × 6, and forty-one each 10 × 8. The discharge of these vents will be for the formula (co-efficient 6/8) :—

$$q = 2\,b\,\sqrt{d}\,(3d^2 + 2d)$$

allowing the head to be 2 feet—

7	10 × 6 vents @ 450 cubic feet per 1″ each	...	3,150	cubic feet per 1″.
41	10 × 8 do. @ 620 do. each	...	25,420	do.
	Total discharge	...	28,570	do.

4. In this office note, No. 790 T.J., printed in G.O., No. 563 I., dated 29th June, it will be seen that the maximum discharge required has been approximately taken as 30,000 cubic feet per 1″; it was also proposed, in paragraph 3, that for additional safety the northern end of the bank should be lowered ; this last has been done with the result that although there was very heavy fall of rain the tank was safe last year. It is considered with the falling shutters proposed the tank will be perfectly safe.

5. The estimate amounts to Rs. 28,740, being as follows:—

	RS.
3 vents 10 × 6 @ 560 = ...	1,680
41 do. 10 × 8 @ 660 = ...	27,060
Total ...	28,740

the rate per square foot being Rs. 8 for the smaller shutters and Rs. $8\frac{1}{4}$ for the larger. To meet the amount required, Rs. 28,740, we have Rs. 10,823,* the amount of savings on the Srívaikuntham project, and Rs. 10,042,† the balance of the lump sum provision available for unforeseen works, or a total of Rs. 20,865. This leaves Rs. 7,875 to be provided for.

* See G.O., No. 563 I., dated 29th June 1885, Chief Engineer's note.

† See G.O., No. 744 I., dated 1st Sept. 1885.

6. Should there be any difficulty in obtaining sanction for this extra amount required, the number of vents might be reduced, and only twenty-nine vents 10 × 8 and three of 10 × 6 be built, and the others added hereafter.

This would give a discharge as follows:—

29 vents 10 × 8 @ 620 = ...	17,980
7 do. 10 × 6 @ 450 = ...	3,150
Total cubic feet per 1″ ...	21,130

This would make the bank safe in all but extraordinary years, and if there was sufficient length of the bund at the north end of the channel levelled down in those years the tank should be safe, but at the cost of serious loss to crops, and damage to the fresh-water and other irrigating channels, &c.

TRICHINOPOLY,
11th February 1886.

(Signed) H. R. MEAD, Colonel, R.E.,
Superintending Engineer, VI Circle.

No. 56 I.

Submitted to Government with a recommendation that the estimates, amounting to Rs. 28,740, for providing falling shutters for the remaining 44 vents of the Opar Odai dam may be sanctioned.

2. The following statement, furnished by the Examiner of Public Works Accounts, with his office note, No. 978, dated 26th March 1886, indicates that a net saving of Rs. 20,381 has been effected on works of the Srívaikuntham anicut system, reported by the Executive Engineer of the Tinnevelly division to have been completed, but for which the immediate submission of completion reports is not possible.

——	Estimate.	Expenditure up to date.	Savings.
	RS.	RS.	RS.
Head works	27,027	19,999	7,028
North main channel, Pottakulam revetment	7,240	6,244	996
Do. Opar Odai dam	39,310	34,761	4,549
Do. Korampallem tank, compensation for land...	15,553	11,957	3,596
Do. Minor distributaries, earthwork	25,500	21,317	4,183
South main channel, Nailur branch channel, drop	1,540	1,502	38
Do. do. earthwork	1,630	1,605	25
Do. do. head-sluice	1,360	1,394	— 34
Total ...	1,19,160	98,779	20,381

If to the above amount of Rs. 20,381, the sum of Rs. 14,163, reserved in G.O., No. 919 I., dated 28th October 1885, for unforeseen works of this system, be added, there will be an aggregate saving of Rs. 34,544, which is more than sufficient to cover the proposed outlay of Rs. 28,740.

3. The Superintending Engineer having represented, in his letter, No. 578 T.N., dated 17th February 1886, that the work should be put in hand at once owing to the site being inaccessible when there is water in the Korampallem tank, he was informed, in anticipation of sanction, that arrangements may be made for work being proceeded with to the extent of the allotment of Rs. 17,886 provided in the preliminary issue of the budget estimates for expenditure during 1886-87.

CHEPÂK,
1st April 1886.

(Signed) J. O. HASTED, Colonel, R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 6th April 1886, No. 307 I., Public Works.

The estimates, amounting to Rs. 28,740, for providing the remaining 44 vents of the Opar Odai dam with falling shutters, are sanctioned from the aggregate saving of Rs. 34,544 referred to in paragraph 2 of the foregoing endorsement of the Chief Engineer for Irrigation. The balance of Rs. 5,804 of the saving will be reserved for unforeseen works, on receipt of information from the Examiner of Public Works Accounts that completion reports have been duly received in his office for the works reported to have been completed.

2. This sanction has been registered as No. 3 I. of 1886-87, and classified as shown below:—

N. Capital Expenditure on Irrigation Works not charged against Revenue.
51. Irrigation and Navigation.
Srívaikuntham Anicut System.
Northern Section.
I. Works.
(2) Main Canals and Branches.
N. Tanks and Reservoirs.
Opar Odai Dam.
Providing the remaining 44 vents with falling shutters, Estimate ... Rs. 28,740.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, VI Circle.
„ Chief Engineer for Irrigation.
„ Examiner, Public Works Accounts, with duplicate abstract estimate.
„ Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 6th.

Recd. *Encl.*

G.O., 6th April 1886, No. 307 I.

APRIL.

Opar Odai Dam

Estimate of Rs. 28,740 *for providing with falling shutters* 44 *vents of the* —, Tinnevelly district, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following letter from Colonel W. S. TREVOR, R.E., Secretary to the Government of India, Public Works Department (Account—Irrigation), to the Secretary to the Government of Madras, Public Works Department, dated Fort William, 26th March 1886, No. 35 A.I.:—

I am directed to acknowledge receipt of your letter, No. 2867, dated 1st December 1885, and telegram of the 5th January last regarding the allotment of funds for the Periyar project for 1886-87.

2. In reply, I am to say that the Government of India regrets that no funds are available for the work in 1886-87. The Government of India is aware of the advantages derivable from such a work as the Periyar project, but owing to financial pressure considerable difficulty is experienced in carrying on unfinished works in hand, and it is impossible to assign even a small sum for the commencement of any new work. As the Madras Government has been informed by the Government of India in the Foreign department, funds are not likely to be available for some years, and the land required for the Periyar project should not be taken possession of till funds are available. Instructions relative to the lease of the land required have, it is understood, been also communicated by the Foreign department.

Order—dated 6th April 1886, No. 308 I., Public Works.

Recorded.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Examiner, Public Works Accounts.
„ Superintending Engineer, VI Circle.
„ Revenue Department.
„ Financial „
„ Political „

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 6th.

Recd. *Encl.*

G.O., 6th April 1886, No. 308 I.

APRIL.

Periyar Project

Letter from the Government of India stating that funds are not available for 1886-87 *and are not likely to be available for some yea for the* —,*rs* recorded.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From the Superintending Engineer, Tank Maintenance Scheme, dated 12th March 1886, No. 655 T.

ORDER—dated 6th April 1886, No. 309 I., Public Works.

The estimate, amounting to Rs. 420, for tents required for the use of the office establishments of No. 4 Tank division and its sub-divisions is sanctioned as follows :—

Irrigation.
42. Minor Works and Navigation.
Irrigation and Navigation Works.
Works for which neither Capital nor Revenue Accoucnts are kpt.
Tools and Plant.
Camp Equipage.
New Supplies.

	RS.
One Bechoba tent for No. 4 Tank division office	180
Three Bechoba tents for Nos. 1, 2 and 3 sub-division offices at Rs. 80 each	240
Total estimate ...	420

2. This sanction has been registered as No. 4 I. of 1886-87.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, Tank Maintenance Scheme, with one enclosure.
,, Chief Engineer for Irrigation.
,, Examiner, Public Works Accounts, with duplicate abstract estimate.

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 6th.

Recd. *Encl.*

G.O., 6th April 1886, No. 309 I.

APRIL.

Tents

Estimate of Rs. 420 *for* — required for use of the office establishments of No. 4 Tank division and sub-divisions, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers:—

From Lieutenant-Colonel J. PENNYCUICK, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 22nd March 1886, No. 1948 T.J.

I have the honor to resubmit, for sanction, an estimate, amounting to Rs. 11,000, for constructing the 4-vent surplus sluice in Muniyár, Coleroon right bank and channel and for Vaulkey drainage sluice.

2. The necessity for the work was explained in the report attached, and the plan and estimate were approved by my predecessor by whom they were signed.

Enclosures.

Report by Superintending Engineer, VI Circle, on estimate for constructing a surplus sluice for the Muniyár, in the right bank of Coleroon, at the 50th mile from the Upper anicut.

The 4-vent surplus sluice, about 6 miles below the head of the Muniyár, failed last year and had to be dismantled, it not being reparable. It is necessary that the Muniyár, that receives the drainage of about 25 square miles, should be provided with a new surplus work, and it is proposed to build in a site in the 50th mile, or $4\frac{1}{2}$ miles below the site of the one that failed. The advantage of this site over the original site is that the difference of level of the Coleroon and Muniyár is greater. The proposed sluice is 4 vents of 6 feet square with screw shutters working in channel irons, and capable of standing pressure on either side. It is a powerful work, and will give great relief during heavy rains to the Muniyár.

2. Early sanction is requested. A sum of Rs. 5,000 has been applied for for the work in the budget for 1886-87 submitted to Government on the 21st September 1885. It is requested that this grant may be provided in the final issue of the budget.

(Signed) H. R. MEAD, Col., R.E.,
Superintending Engineer, VI Circle.

10th March 1886.

Report to accompany estimate for a surplus sluice for the Muniyár.

The 4-vent surplus sluice at the 46th mile of the Coleroon bank became undermined, and, when the backing was removed to allow of repairs, the whole work fell to ruin. The circumstances have already been reported. The sluice was never very effective as it ceased to discharge whenever there was even a moderate fresh in the Coleroon. In the heavy floods of July 1882, for instance, the water-level in the Coleroon was $3\frac{1}{2}$ feet higher than in the Muniyár. It was, of course, useful when there was local rain over the Muniyár catchment basin (which at the sluice was about 20 square miles) provided there was no fresh in the Coleroon, but at times when it was most necessary to get rid of some water from the Muniyár, the sluice was rarely of use. For this reason it has been decided to construct a new sluice $4\frac{1}{2}$ miles further down the river instead of rebuilding the old one. The site selected is at 50 miles 5 feet of the Coleroon bank, and is the best site available, as below it there is a considerable distance between the two rivers.

2. The drainage area to be taken into account is about 25 square miles, nearly all nunjei. In this is included all the country between the Cauvery and Coleroon east of Vaduvagudi and west of proposed work. The drainage from this area may amount to $300 \times 25\frac{3}{5} =$ 2,560

Add discharge through Cauvery irrigation sluices which should be partly open in floods	240
	2,800

There is no necessity to open the Perumalkovil surplus in Cauvery during heavy flood in Muniyár. The flood discharge may be arrived at in another way. The highest recorded flood at the Upper dam, $1\frac{1}{4}$ miles below proposed surplus, is $2\frac{1}{2}$ feet. This gives a discharge over dam and through vents of 2,341 cubic feet. The river banks below the dam are found to be safe

when the depth on dam, with vents open, is 1 foot, which corresponds to a discharge of 1,500 cubic feet. As either calculation is taken, the discharge to be provided for may be 1,300 and is certainly over 840 cubic feet. It is impossible to say how often the sluice is likely to be incapable of discharging this quantity without the Muniyár rising to such a level as would endanger its banks or flood much country, but there is every reason to believe that there will rarely, if ever, be any difficulty during the south-west monsoon, and during the north-east monsoon the time of heaviest flood in the Muniyár will generally have passed before the Coleroon rises to any great height.

3. The sluice will have 4 vents, 6 feet square, fitted with screw gearing shutters working in channel irons. The shutters are designed to take pressure of water on either side. The portions of the building more exposed to destructive action will be faced with granite from the old sluice or built in Portland cement.

MUNIYÁR,
5th March 1886.

(Signed) W. HUGHES,
Executive Engineer.

No. 57 I.

Submitted to Government with a recommendation that the estimate for constructing a surplus sluice for the Muniyár may be sanctioned.

2. The attention of the Superintending Engineer is called to the remarks made on the plan and estimate.

CHEPÂK,
2nd April 1886.

(Signed) J. O. HASTED, Colonel, R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 9th April 1886, No. 313 I., Public Works.

The estimate, amounting to Rs. 11,000, for constructing a surplus sluice for the Muniyár, Coleroon right bank, is sanctioned under Extensions and Improvements as a special case, although the estimated cost exceeds Rs. 2,500, the usual limit of sanction under that head, as the construction of the sluice cannot be postponed until the completion estimates for the Cauvery delta are prepared and sanctioned.

2. This sanction has been registered as No. 5 I. of 1886-87, and classified as shown below:—

Irrigation.
41. Major Works.
(Working Expenses.)
Cauvery Delta System.
Extensions and Improvements.
(4) Drainage and Protective Works.
C. Works.

Constructing a surplus sluice in the Muniyár, Coleroon right bank,
Estimate ... ... Rs. 11,000

3. An allotment of Rs. 5,000 will be provided for this work in the final issue of the current year's budget estimates now under preparation.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, VI Circle, with four enclosures.
,, Chief Engineer for Irrigation.
,, Examiner, Public Works Accounts, with duplicate abstract estimate.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 9th.

Recd. *Encl.*

G.O., 9th April 1886, No. 313 I.

APRIL.

Surplus Sluice

Estimate for constructing a — for the Muniyár, on the Coleroon right bank, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following letter from Major S. C. CLARKE, R.E., Acting Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 27th March 1886, No. 574 G.N. :—

I have the honor to forward, herewith, for sanction, a revised estimate (in duplicate), amounting to Rs. 3,005, for constructing the divisional and sub-divisional offices at Dorgam, Rushikulya division.

2. The Executive Engineer states that the original estimate, Rs. 2,400, sanctioned in G.O., No. 527 I., dated 2nd June 1884, had to be revised owing to the accommodation having been considered inadequate.

3. The difference (Rs. 605) between the original and revised estimates can, it is thought, be provided for from the item of estimate " unforeseen works."

Order—dated 19th April 1886, No. 322 I., Public Works.

The revised estimate, amounting to Rs. 3,005, for constructing the divisional and sub-divisional offices at Dorgam, Rushikulya division, is sanctioned in supersession of the original estimate of Rs. 2,400 sanctioned for the building in G.O., No. 527 I., dated 2nd June 1884, the excess of Rs. 605 being met from the balance of the provision made for unforeseen works, which will then be reduced to Rs. 68,235.

2. This sanction has been registered as No. 6 I. of 1886-87, and classified as shown below :—

Famine Relief and Insurance.
34. Construction of Protective Irrigation Works.
Rushikulya Project.
I. Works.
(1) Head Works.
K. Buildings.
Divisional and sub-divisional offices, Estimate ... ... Rs. 3,005

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, I Circle, with enclosures.
" Chief Engineer for Irrigation.
" Examiner, Public Works Accounts, with duplicate abstract estimate.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras,

PUBLIC WORKS.

Dated April, 19th.

Recd. *Encl.*

G.O., 19th April 1886, No. 322 I.

APRIL.

Rushikulya Division

Divisional and sub-divisional offices at Dorgam.—Revised estimate of Rs. 3,005 for constructing the —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following letter from J. B. PENNINGTON, Esq., Collector of Tanjore, to the Secretary to Government, Public Works Department, dated 15th April 1886, No. 2443 :—

I have the honor to report that a piece of land measuring $18\frac{49}{64}$ cents, in the village of Naranamangalam, Negapatam taluk, is required by the Public Works Department for the straight cut in the Pándavayar, in the said village of Naranamangalam; and as it is desirable, in order to ensure an indefeasible title to it, to acquire the land under the provisions of the Land Acquisition Act X of 1870, I forward, herewith, a draft declaration, under section 6 of the Act, that it is needed for a public purpose, and request that you will be good enough to order the same to be published in the *Fort St. George Gazette*, and to issue instructions for the acquisition of the land.

ORDER—dated 24th April 1886, No. 327 I., Public Works.

Ordered that the notification be published in the *Fort St. George Gazette*, and that the Collector of Tanjore be authorised to take order for the acquisition of the land.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, VI Circle.
„ Chief Engineer for Irrigation.
„ Revenue Department.

IRRIGATION.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 24th.

Recd. *Encl.*

G.O., 24th April 1886, No. 327 I.

APRIL.

Land

Orders for the acquisition of — required for the straight cut in the Pándavayar, in the Naranamangalam village, Tanjore district.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From Lieutenant-Colonel J. L. L. MORANT, R.E., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Nellore, 13th March 1886, No. 2196 K.S.

I have the honor to submit, for sanction, a revised estimate for the tidal lock at Tadinada, in the Gudiváda division.

2. I enclose copies of correspondence which, with the comparative statement, explain the reasons for the revision of the estimate.

3. The original estimate for this lock amounted to Rs. 29,520. The revised estimate is Rs. 31,930. The excess (Rs. 2,410) is 8 per cent. over the sanctioned estimate.

ENCLOSURES.

From W. C. DEMORGAN, Esq., Executive Engineer, Gudiváda division, to the Superintending Engineer, II Circle, dated 13th January 1886, No. 2347.

I have the honor to report that, on the 18th December 1885, the foundations of Tadinada lock were pumped dry and the surface of the concrete partly cleaned. I then checked the levels of the different portions of the foundations and found that an excess depth of ·93' of concrete had been spread. This appears to have been the result of a mistake in the levels of the overseer then in charge.

2. Mr. Rundall, in his letter, No. 224 K.S., dated 4th May 1885, ordered that the level of foundations as per plan should be reduced by ·22 so as to bring them a lower cill to — 5·72 instead of — 5·50. I have accordingly removed the surplus concrete plus 3 inches additional to allow of a satisfactory finishing layer being spread.

3. I find that the concrete has set extremely badly. It consists of four parts of aggregate to one of surkhi mortar.

4. The aggregate is swamp kunker, and I learn that it was procured from land in which there is much "soudoo." This combined with the fact that there is great leakage from the Upputeru may account for the surkhi mortar having failed to set satisfactorily.

5. The proportion of mortar to aggregate does not appear to have been regulated with regard to the vacant spaces to be filled by the mortar. I should say that 3 to 1 would be a more satisfactory proportion ; but, before putting on the final layer, I am making some experimental blocks of concrete.

6. The bricks, from which the surkhi was made, seem to have contained a large quantity of sand, and it will not be advisable to mix any more of the latter in the mortar.

7. I should be much obliged by your informing me whether there is any prospect of either yourself or the Chief Engineer for Irrigation visiting Tadinada before the close of the official year. It would be satisfactory to have the foundations inspected and also to have the point settled whether swamp kunker is a suitable aggregate for concrete. The Vingeram lock was built on swamp kunker concrete, and, as you are aware, there is a crack in each chamber wall.

8. There is an unspent balance of Rs. 6,000 on Tadinada lock, which, under other circumstances, it would have been easy to expend. There would not be time, however, to work out this sum between any probable date of inspection by yourself or the Chief Engineer for Irrigation and the close of the official year. I have, therefore, made the following arrangements, which I trust will meet with your approval.

9. Rs. 5,000 of the above amount have been transferred to Pedalunka drain. As already reported all work done on this drain during the current official year will be most beneficial.

10. Although the date of commencement of the superstructure of Tadinada lock will be delayed, we shall easily complete it in next working season as stone dressing will continue, and we shall be able to employ as many masons as are procurable.

11. The transfer will be arranged for in the statement of transfers of allotments from one work to another under Capital Account to be submitted for sanction in the latter part of February 1886.

From Lieutenant-Colonel J. L. L. MORANT, R.E., Superintending Engineer, II Circle, to the Executive Engineer, Gudiváda division, dated 1st February 1886, No, 1973 K.S.

I have the honor to acknowledge your letter, No. 2347, dated 13th January 1886.

2. Neither the Chief Engineer nor I are likely to be in your division for a long time. Meanwhile, if there is the least doubt regarding the foundations, do not build on them. Please carefully consider whether the sight of the lock had not better be changed and fresh foundations laid in cement.

3. The way to discover how much mortar will mix with the stone to form concrete is to put the stone in a box and fill it with water. Then take out the stone and the quantity of water left represents the quantity of mortar required.

4. I would recommend the disuse of swamp kunker in future.

5. Your arrangements in paragraphs 8 and 9 are approved.

6. Meanwhile, carefully consider whether the foundations should be and could be dug up and relaid properly with good stone and *cement*, or whether a fresh site be fixed for the lock. After careful consideration please report fully.

From W. C. DEMORGAN, Esq., Executive Engineer, Gudiváda division, to the Superintending Engineer, II Circle, dated 8th March 1886, No. 2808.

In continuation of my No. 2347, of 13th January 1886, and with reference to your No. 1973 K.S., of 3rd February 1886, I have the honor to forward a revised estimate and comparative statement for the tidal lock at Tadinada.

2. I have carefully considered the matter, and see no reason to alter the opinion expressed in the letter under reference.

3. I consider that great risk would be incurred by building on the foundations in their present condition. The chamber walls of Vingeram lock have cracked. The concrete employed for the foundations was, in all respects, similar to that used at Tadinada, and the site has not the natural disadvantages caused by the presence of springs as at Tadinada.

4. As the level of the top of the concrete at Tadinada was raised too high, it was removed to an average depth of ·93′, and an opportunity was afforded of viewing the concrete in the interior.

5. I found that it had set extremely badly. It was easily *racked* up with a stick, and the fragments that were removed crumbled under pressure by the hands.

6. I attribute the failure of the concrete to—

(*a*) The kunker was obtained in land where "soudoo" was prevalent and contains much saline matter.

(*b*) The salt springs running under the foundations from the Upputeru.
For the above two reasons the beneficial action of the surkhi would be vitiated.

(*c*) The mortar and aggregate were not properly proportioned. Four parts of swamp kunker to one of surkhi mortar were used. I have experimented with the same materials and find that 3 or even 2½ parts kunker to 1 mortar are the proper proportions. No allowance appears to have been made to the fact that the lumps of kunker are full of interstices and absorb water readily, the result being that between much of the aggregate there is no cement at all.

(*d*) The bricks from which the surkhi was made contain so much sand that it was unnecessary to mix any sand with the mortar.

I do not apprehend any further settlement of the foundations, as there are 4½ concrete, and it has now been standing for a year; but as the pressures over the foundations are unequal, it is to be feared that failure would arise through the concrete being crushed and forced out at the sides.

7. I therefore propose to remove the existing foundation to a depth of 1½′ and fill in with concrete made of 1 part Portland cement, 2 parts Kistna river sand, and 10 parts broken stone from Bezváda, and have revised the estimate on this plan.

8. Mr. Peddie, the manager of the cement works, informs me that good concrete is made with 1 part Portland cement, 2 sand, and 6 aggregate. As, however, the Madras cement claims favorable comparison with the best English brands, the proportion of aggregate appears too low; 8 and 10 and even 16 parts aggregate being freely employed for foundations in England and on the continent.

9. The excess on this estimate will raise the total under (2) Main Canals in the estimates already submitted for the Polraz canal extension, from Rs. 12,719 to Rs. 15,129, and I have the honor to request that you will make the necessary alteration.

10. I have the honor to request that, if approved, speedy sanction be granted, as the broken stone should be ordered at Bezváda, so as to be brought down to Tadinada as soon as the canals are reopened. All the materials are ready and the work can easily be completed in the next official year. The swamp kunker at site can be utilised for cattle ramps.

Note by the Chief Engineer for Irrigation.

No. 62 I.

I am inclined to attribute the failure of the concrete to the mortar used not being hydraulic and to springs of salt water having washed it out. On my last inspection I noticed that the soil of which bricks were being made was a great deal too sandy, and it appears that this brick pounded was used as surkhi, which probably weakened the mortar. Burnt clay should be used for surkhi, not burnt brick however made.

2. Swamp kunker if of fair quality, that is, not so sandy as to crush with considerable pressure, makes good concrete and was used in the Masulipatam and Nizampatam tidal locks—it seems probable that inferior kunker was used.

3. I have discussed the arrangements that should be made with the Superintending Engineer and the revised estimate has been prepared accordingly.

OOTACAMUND,
19th April 1886.

(Signed) J. O. HASTED, Colonel, R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 26th April 1886, No. 328 I., Public Works.

The revised estimate, amounting to Rs. 31,930, for constructing the tidal lock at Tadinada, in the Kistna Eastern delta, is sanctioned in lieu of the provision of Rs. 29,520 made for the lock in the classified abstract estimate printed with G.O., No. 691 I., dated 30th July 1884, the excess of Rs. 2,410 being met from the balance of the lump sum provided in the delta completion estimates for unforeseen works, which will then be reduced to Rs. 2,55,938.

2. This sanction has been registered as No. 7 I. of 1886-87, and classified as shown below :—

Capital Expenditure on Public Works not charged against Revenue.
48. Irrigation.
Kistna Delta System.
Eastern Section.
Gudiváda Division.
I. Works.
(2) Main Canals and Branches.
Polraz Canal.
I. Navigation.
Constructing a tidal lock at Tadinada, Estimate ... ... Rs. 31,930

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, II Circle, with three enclosures.
,, Chief Engineer for Irrigation.
,, Examiner, Public Works Accounts, with duplicate abstract estimate.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 26th.

Recd. *Encl.*

G.O., 26th April 1886, No. 328 I.

APRIL.

Tidal Lock

Revised estimate of Rs. 31,930 *for constructing a* — at Tadinada, in the Kistna Eastern delta, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following letter from Lieutenant-Colonel A. FILGATE, R.E., Deputy Secretary to the Government of India, Public Works Department (Account—Civil Works), to the Secretary to the Government of Madras, Public Works Department, dated Fort William, 18th February 1886, No. 18-A C.W. :—

I am directed to acknowledge receipt of your letter, No. 1086 I., dated 19th December 1885, requesting the sanction of the Government of India to the debit to Salt Funds and Local Funds of portions * of the estimated outlay on the Kovur-Munjair canal, now in progress from Canal and Ferry Funds, in the Godávari district.

	RS.
* To Local Funds	37,350
„ Salt Funds	60,000

2. In reply, I am to say that the Government of India has no objection to the Canal and Ferry Funds and other Local Funds paying such share of the cost as the Government of Madras may deem equitable; no portion of the outlay on the Kovur-Munjair canal can, however, be legitimately classified as "Salt expenditure."

ORDER—dated 27th April 1886, No. 329 I., Public Works.

Ordered that the following reply be sent to the Government of India :—

(Here enter No. 330 I., dated 27th April 1886.)

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, I Circle.
„ Chief Engineer for Irrigation.
„ Examiner, Public Works Accounts.
„ Revenue Department.
„ Financial „

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 27th.

Recd. *Encl.*

G.O., 27th April 1886, No. 329 I.

APRIL.

Kovur-Munjair Canal

Ordered that the Government of India be addressed with regard to their refusal to sanction the debit to Salt Funds of a portion of cost of construction of the —.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

LETTER—from

COLONEL J. O. HASTED, R.E.,

Secretary to the Government of Madras,

Public Works Department,

Irrigation Branch,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,

PUBLIC WORKS DEPARTMENT,

(IRRIGATION).

SIR,

I am directed, in reply to your letter, No. 18-A C.W., dated 18th February 1886, to forward, for the information of the Government of India, the following brief sketch of the circumstances under which the Kovur-Munjair canal was constructed, as former communications have not placed the Government of India in possession of the complete facts of the case, a consideration of which has induced this Government to recommend the apportionment of the outlay to which the Government of India now object.

2. The proposal for a junction canal from the Cocanada canal above the Kovur lock to the Coringa canal originated in the necessity for facilitating access to the Pennaguduru salt-pans. Boats could only reach the salt-pans by the Cholangi river, the navigation of which was attended with much difficulty as the channel over the bar could not be maintained except at great expense. Doubts were, moreover, entertained whether dredging would secure satisfactory results. Under these circumstances the Government, in August 1869, acting on the recommendation of the Board of Revenue, ordered the preparation of plans and estimates for a canal to the salt-pans.

In October 1869 the Superintending Engineer submitted an estimate for excavating a canal to the salt-pans and extending it to join the Coringa canal above the Munjair lock. There was then considerable correspondence, which extended over some years, relative to the additional revenue under Salt that might be expected in consequence of the construction of the canal and to the bearing of the canal on the extension of irrigation.

In August 1876 revised estimates for the canal were submitted and the Collector, under whom salt operations were then carried on, reported that unless some scheme of the kind was carried out, it would not be very many years before it became impossible to remove salt from the pans by boats by means of the Cholangi river. The Government thereon sanctioned the estimate deciding that the cost of the canal only so far as the Cholangi river should be charged to the Salt Department, and that the Local Funds and Canal and Ferry Funds should contribute towards the extension to the Coringa canal, the Local Fund Board having promised a contribution of about Rs. 39,000.

The canal was then excavated as far as the Cholangi river, but in 1883, when the lock into the river to enable boats to be taken to the salt-pans was about to be

commenced, the Commissioner of Salt Revenue objected to its construction on the ground that fresh water would pass through it, and the Salt factory would be injured, and requested that all drainage which would naturally fall into the Cholangi creek should be diverted: the estimates were consequently revised and, on the Commissioner of Salt Revenue representing that the canal (altered as it was at his request) would only serve one platform, and deprecating the charge to the Salt Department of any portion of the expenditure, the Government ruled that, as the canal was originally designed for the special benefit of the Salt Department, the contribution must be paid.

3. The Commissioner of Salt Revenue, in deprecating the charge to Salt of any portion of the cost of the canal, states that no more than a lakh of maunds are ever likely to be available for removal by the new canal, that the factory is already approached by good roads and intersected by a navigable creek, and that the extension of the excise system to Pennuguduru rendered it necessary to charge the licensees with interest, which would be an unfair arrangement.

4. Having considered those objections, the Government observed that it was open to Government to relieve the licensees from payment of interest on the cost of this particular work and authorised the Commissioner to do so.

5. It will thus be apparent to the Government of India that this Government having considered all objections raised to the charge pro posed to Salt, bearing in mind that the work was primarily undertaken in the interests of Salt, have deliberately determined that a considerable portion of the expenditure can be legitimately classified as "Salt expenditure," and I am therefore to request that the Government of India may be moved to reconsider the decision expressed in their letter under reply.

I have the honor to be,

Sir,

Your most obedient servant,

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

Fort St. George,
27th April 1886.

IRRIGATION.
ACCOUNT.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated April, 27th.

Recd. *Encl.*

27th April 1886, No. 330 I.

APRIL.

Kovur-Munjair Canal

The Government of India requested to reconsider their decision not to permit the debit to Salt Funds of a portion of cost of construction of the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

TABULAR STATEMENT OF MISCELLANEOUS PROCEEDINGS AND MATTERS OF ROUTINE,

IRRIGATION,

FOR THE MONTH OF APRIL 1886.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Statement of objectionable items, Irrigation, VI Circle, for January 1886.—Orders on the —.	2nd April 1886, No. 295 I.	9th Mar. 1886, No. 233 I.
Sangam anicut— Opening of the under-sluices.—Orders wired to Pellacoor Venkoo Reddy, Nellore, on his telegram protesting against the — and closure of the branch channel sluice to Duvur, &c., villages under Sangam project.	2nd do. do. No. 296 I.	......
Periyar project — Northern main channel.—Letter from the Government of India returning the original plan of survey, longitudinal and transverse sections of the — communicated to the Chief Engineer for Irrigation, and a copy of the plan to be furnished to the Collector of Madura.	3rd do. do. No. 297 I.	......
Statement of objectionable items, Irrigation (Imperial and Provincial), III Circle, for January 1886.—Orders on the —.	3rd do. do. No. 298 I.	9th Mar. 1886, No. 234 I. 9th Feb. 1886, No. 132 I. 11th Jan. 1886, No. 27 I. 12th Dec. 1885, No. 1065 I. 23rd Nov. 1885, No. 996 I.
Godávari Western division—Revised statement showing proposed closure of canals.—Ordering that the date given for the re-opening of the Main canal and Attili canal in the — be altered from 1st April to 15th April 1886.	3rd do. do. No 300 I.	......
Minor irrigation works, Cuddapah district, requiring repairs during 1886-87.—Proceedings, Board of Revenue, approving revised list of —, recorded.	3rd do. do. No. 302 I.	......
Rajoli water-supply.—The Resident at Hyderabad to be informed that the Superintending Engineer, III Circle, has telegraphed to say that the supply channel to Rajoli has been cleared out and a man employed to keep it open, and that nothing more can be done.	6th do. do. No. 304 I.	12th Mar. 1886, No. 242 I. 15th Mar. 1886, No. 1048 C.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Informed accordingly	6th April 1886, No. 305 I.	.....
Minor irrigation works, Ganjam district, proposed for execution during 1886-87.—Proceedings, Board of Revenue, approving list of — recorded.	6th do. do. No. 310 I.	11th July 1884, No. 640 I. 19th Feb. 1886, No. 178 I.
Statement of objectionable items, Irrigation, I Circle, for January 1886.—Orders on the —.	7th do. do. No. 311 I.	11th Jan. 1886, No. 23 I. 15th Feb. 1886, No. 159 I. 9th Mar. 1886, No. 230 I.
Statement of objectionable items, Irrigation, V Circle, for January 1886.—Orders on the —.	7th do. do. No. 312 I.	16th Feb. 1886. No. 158 I. 16th Mar. 1886, No. 245 I.
Special deputy collector for land acquisition in Nellore.—Proceedings, Revenue Department, approving of retention of the — for a further period of two months, communicated to Superintending Engineer, II Circle.	9th do. do. No. 314 I.	2nd Dec. 1885, No. 1027 I.
Drawings of the Barur tank project.—Ordered that the — submitted by the Chief Engineer for Irrigation, be forwarded to the Government of India.	9th do. do. No. 315 I.	10th Mar. 1884, No. 264 I. 6th Feb. 1885, No. 115 I. 16th Mar. 1885, No 270 I.
Forwarded	9th do. do. No. 316 I.	......
Vedarniem canal.—Endorsement from the Revenue Department on proceedings, Board of Revenue, urging the early execution of repairs to the —, communicated to Superintending Engineer, VI Circle, for report.	9th do. do. No. 317 I.	1st Sept. 1884, No. 787 I. 1st Oct. 1884, No. 883 I. 11th Oct. 1884, No. 914 I. 22nd April 1885, No. 389 I. 8th June 1885, No. 1327 W. 21st July 1885, No. 635 I. 9th July 1885, No. 1586 W. 13th July 1885, No. 1633 W. 7th Sept. 1885, No. 763 I. 1st Mar. 1886, No. 206 I.
Statement of objectionable items, Imperial, Irrigation, IV Circle, for January 1886.—Orders on the —.	10th do. do. No. 318 I.	1st Sept. 1885, No. 748 I. 12th Dec. 1885, No. 1066 I. 11th Jan. 1886, No. 28 I. 17th Feb. 1886, No. 165 I. 9th Mar. 1886, No. 232 I.
Minor irrigation works, Kurnool district, requiring repairs during 1886-87.—Proceedings, Board of Revenue, approving list of —, recorded.	12th do. do. No. 319 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Minor irrigation works—Grants made to the several districts for repairs during 1885-86 *to the end of February* 1886.—Endorsement from the Examiner, Public Works Accounts, forwarding copy of proceedings, Board of Revenue, reviewing the — recorded.	14th April 1886, No. 320 I.	12th Sept. 1885, No. 1498 C. 10th Dec. 1885, No. 1048 I. 19th Jan. 1886, No. 57 I.
Land required for the Kanigiri reservoir in Padamatipolem village, Nellore district.—The Collector of Nellore informed by wire that the declaration for acquisition of the —, the early publication of which he requests, has already been published in the *Fort St. George Gazette.*	15th do. do. No. 321 I.	......
Vedarniem canal.—Proceedings, Revenue Department, communicating a further complaint from officers of the Salt Department of bad state of the —, communicated to the Superintending Engineer, VI Circle, for early submission of the report on the question already called for.	21st do. do. No. 323 I.	1st Sept. 1884, No. 787 I. 1st Oct. 1884, No. 883 I. 11th Oct. 1884, No. 914 I. 22nd April 1885, No. 389 I. 8th June 1885, No. 1327 W. 21st July 1885, No. 635 I. 9th July 1885, No. 1586 W. 13th July 1885, No. 1633 W. 7th Sept. 1885, No. 763 I 1st Mar. 1886, No. 206 I. 9th April 1886, No. 317 I.
Koragal anicut.—Ordered that the Resident, Hyderabad, be addressed with regard to the report from Superintending Engineer, III Circle, to say that no orders have yet been received from the Nizam's Government to lower the level of the crest of the — to that of the Walvapur branch.	21st do. do. No. 324 I.	9th Dec. 1885, No. 1040 I. 30th June 1885. No. 568 I.
The Resident requested to see the level of the crest of the anicut reduced before the setting in of the south-west monsoon.	21st do. do. No. 325 I.	......
Lands along the Cauvery, in the Neroor village, Coimbatore district.—Report from Superintending Engineer, IV Circle, with note by the Chief Engineer for Irrigation, regarding —, available to be let out for cultivation, transferred to the Revenue Department.	21st do. do. No. 326 I.	4th June 1879, No. 334 I. 12th Jan. 1880, No. 46, Rev. 27th Aug. 1885, No. 734 I.
Ellore canal.—Ordered that it be notified in the *Fort St. George Gazette* that the part in the Godávari district of the — was opened for traffic on the 15th instant.	28th do. do. No. 331 I.	19th Dec. 1885, No. 1091 I. 22nd Feb. 1886, No. 187 I. 26th Jan. 1886, No. 78 I. 26th Feb. 1886, No. $\frac{205\ I.}{B.}$

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Indent for English stores dated 23rd November 1885.—Report from the General Superintendent, Public Works Stores, through the Superintending Engineer, V Circle, to say that saws, and not files as stated among the demands for the Kistna Eastern division, in the —, are required, as pointed out by the Director-General of Stores, India Office, recorded.	29th April 1886, No. 332 I.	11th Aug. 1884, No. 723 I. 14th Oct. 1884, No. 918 I. 5th Aug. 1885, No. 680 I. 17th Dec. 1885, No. 1077 I. 12th Apr. 1886, No. 1476 C.
Monthly appropriation return, Irrigation, for March 1886.—The —, forwarded to the Accountant-General, Public Works Department.	30th do. do. No. 333 I.	23rd Mar. 1886, No. 263 I.
Model rock-drilling machine designed by Lieutenant-Colonel J. Pennycuick, R.E.—Report from the General Superintendent, Public Works Workshops, explaining the increase over the estimated cost of making the —, and letter from Lieutenant-Colonel Pennycuick explaining how, in his opinion, the object for which the model was constructed has been attained, recorded.	30th do. do. No. 334 I.	16th Aug. 1884. No. 741 I. 25th Mar. 1886, No. 272 I.